

REMARKS

Claims 1 and 6-27 are now in this application. Claims 1 and 6-17 are rejected. New claims 18-27 are added. Claims 1, 6 and 13-16 are amended herein to clarify the invention, to express the invention in alternative wording, to broaden language as deemed appropriate and to address matters of form unrelated to substantive patentability issues.

Applicant herein traverses and respectfully requests reconsideration of the rejection of the claims cited in the above-referenced Office Action.

Before addressing in detail the substantive claim rejections below, the limitations of the disclosure of the primary Barry et al. reference are discussed, as being the primary reference applied to all rejections presently of record. It remains applicant's position that the "pig" used Barry is limited to a body having close conformance with a traversable interior diameter of the pipe to be cleaned. It further remains applicant's position that Barry is enabling only for use of a pig dimensioned to operate as a propelled "piston" essentially forming a hydraulic seal between the pipe walls (or lumen carried thereon) and the outside of the pig. In order to be properly applied as a reference against a recited feature(s), "the prior art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public." *Akzo N.V. v. U.S. International Trade Commission*, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). Thus, if it is established that the

teaching of Barry et al. is limited to a pig of a generally inner-pipe conforming size, its disclosure cannot be somehow expanded to include the speculative use of an ice/water slurry which can be drawn into a heat exchanger tube to be cleaned, by the mere application of suction, nor can it be relied upon for the indication that such slurry will have any likelihood of cleaning success in such situation if so tried. It is therefore submitted that the reference does not provide teaching in variance of or addition to such enabling disclosure, and therefore Barry cannot constitute a proper reference advanced either for the premise of using ice having a size small enough to be drawn into, and through, a heat exchanger pipe simply by application of suction from another end of the heat exchanger tube, or for the probable effectiveness of an ice/ water mixture containing ice which is so dimensioned to permit such effect, for cleaning the type of buildup associated specifically with heat exchanger pipe interiors.

The issue is not whether a reference could conceivably be modified to employ teaching not specifically disclosed, but rather whether the reference, within its four corners, concretely provides such teaching in a manner enabling its practice. In the present instance, Barry et al. clearly does not teach ice having a small enough dimension to be pulled into, and through, a tube, by suction applied at the other end. Thus, applicant respectfully submits that the Examiner's position (i.e., that since Barry et al. does not specifically preclude use of ice smaller than that in close conformance with the tube interior it can somehow be used as teaching of ice having a smaller size relative to a tube interior) is not supported by prevailing law.

In countering the Examiner's position that Barry et al. includes teaching of a pig having a reduced size relative to a tube interior diameter, applicant draws the Examiner's attention to the numerous indications given in Barry et al. which inescapably establishes the clear and unequivocal intention of Barry et al. to use a pig having a dimension matching the inner diameter of the tube to be cleaned (or lumen coating it), and the stark absence of any teaching or suggestion whatsoever relating to use of a pig of smaller size in the cleaning of heat exchanger tubes.

Barry et al. mentions in the background that it is well known in the art "of extracting and distributing petroleum to pass a 'pig' of solid material through a pipeline to wipe deposited paraffins from the wall. Furthermore, "pigging" is a known technique in the cleaning of tubes. However the pigs used are flexible and compressible and are often provided with abrasives embedded in their outer walls or with cutting or gouging devices projecting through their outer surface. Such a pig is forced through a tube by hydraulic action mechanically gouging material from the wall of the tube and pushing debris in front of it." (Col. 2, lines 1-11, emphasis added).

Claim 1 of Barry et al. recites "said pig being dimensioned to conform with the average lumen defined by the thickness of deposits on the tube." The disclosure explains the process used to clean a heavily clogged pipe in which "cleaning is effected by several passes of pigs of increasing diameter. The diameter of the pig first passed is selected to permit it to penetrate the lumen of the contaminated tube, and the pig is launched through the tube in the manner described above. If a pig of correct

diameter is selected by the operator, it is accompanied during its penetration of the contaminant material by a flow of pressurised cleaning liquid which fills the annular space between the pig and the contaminant material. This flow of minimized cleaning medium passes the pig, the progress of which is retarded by the contaminant material. It is thought that the flow of minimized cleaning medium emerges on the downstream side of the pig as an energetic annular jet, which erodes the contaminant material ahead of the pig, allowing it to progress through the tube. This process is then repeated with a pig of larger diameter.” (Col. 3, lines 36-53, emphasis added) Thus, as disclosed, even the smallest pig (first pig) is dimensioned large enough to cut through a layer of lumen coating the tube by scraping therethrough in its travel. And the pigs only increase in size thereafter.

In referring to the use of ice as a pig, Barry et al. states that a “ pig of ice may also be used, for example, where a tube has been distorted during dismantling of a tube bundle or removal to a cleaning pad. An ice pig may jam in an oval tube without serious consequences arising. (Col. 4, lines 27-31, emphasis added). Such disclosure clearly evidences the intention in Barry et al. to use a pig dimensioned to just barely clear the tube interior, as would be expected of a hydraulically driven piston element.

Barry et al. goes on to say that “[i]t is possible to machine such a pig to fit closely the particular dimensions of a tube to be cleaned. This feature is subject, of course, to a limitation in that the pig may not move at all, if there is too small a clearance. For example, clearances of between 0.01" and 0.005", desirably 0.0085",

have been found suitable with a Delrin pig used to clean a steel tube.” (Col. 4, lines 32-38).

Further, Barry et al. discloses that “[i]n known pigging techniques rather complex pigs have been used, having abrasive material incorporated therein as described above. One advantage of the present method is that a simple pig may be used, for example, a simple cylinder of plastics material or a ball (where U-tubes are to be cleaned). (Col. 4, lines 39-44, emphasis added). Such disclosure is revealing of the mandate in Barry et al. to maintain close tolerance between the inner tube diameter and pig diameter, since the disclosure recognizes that a cylinder would jam going around a U-bend, and suggests the use of a ball (sphere) to avoid the problem, rather than suggesting a reduction in size of the pig.

The figures, in addition to the lacking written disclosure, fail to depict a pig that is anything but in close conformance with the tube interior. Indeed, use of a smaller pig would not work according to the functioning of Barry et al.. A hydraulically propelled pig under high pressure relies on an annular “seal” to create a pressure drop which operates to impart the great velocity intended by the disclosed approach. To make the pig smaller would defeat the purpose of the disclosed invention.

Finally, with such a dimensioned pig, Barry et al. requires high pressure to keep it from jamming in the tube. “Suitably the pressures used are in the range from 1,000 to 10,000 psi, preferably from 1,000 to 6,000 psi.” (col. 4, lines 47-49). Surely,

with the much smaller pressure differential created by the simple application of suction (for example, a mere 14.7 psi difference between atmospheric pressure and a perfect vacuum according to well known physical principles) a pig of such nature would never be expected, by the skilled artisan based upon a reading Barry et al., to pass through a debris coated tube in a heat exchanger, as is possible in accordance with the claimed invention.

The rejections are now addressed with specific regard to the various claims and combinations of references.

Claims 1, 7, 9 and 11 are rejected as obvious over Barry (US 4,724,007) in view of Sameshima (JP01-028625) and further in view of Withers Jr. (4,007,774) under 35 U.S.C. §103(a). The applicant herein respectfully traverses this rejection. For a rejection under 35 U.S.C. §103(a) to be sustained, the differences between the features of the combined references and the present invention must be obvious to one skilled in the art.

It is respectfully submitted that a *prima facie* case of obviousness is not established in the rejection of claims 1, 7, 9 and 11. "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest

all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." MPEP §706.02(j) "Contents of a 35 U.S.C. §103 Rejection".

The presently rejected claims are directed specifically to a method of cleaning heat exchangers, in accordance with which, a mixture of ice and water is drawn from a hopper through the heat exchange tube or tubes by applied suction. It is applicant's position that one skilled in the art would not have the requisite guidance or reasonable expectation of success by using the proffered combination of references without application of impermissible hindsight, as explained more fully below.

Barry et al., as discussed above, while relating generally to the cleaning of tubing in heat exchangers, utilizes pigs propelled under high pressure, which are sized to closely match an interior cross-section of the clogged tubing, such that each pig essentially operates like a high velocity piston driven by great pressure behind it, rather than using suction from the other side as a motion imparting mechanism. The invention disclosed in Barry et al. relies on such intentional dimensioning of the pig (which may be made of ice), since the functioning of the method requires a pressure build-up on the back of the pig to propel it (see, for example, col. 3, lines 7-20).

It is notable that, because of this sizing closely matching the interior diameter of the piping, jamming of ice in the tubes is a recognized problem (See col. 4, lines 27-31 of Barry), and would therefore preclude the use of mere suction, as opposed to

the disclosed high pressure, since even the slightest irregularity of the tube would cause a jam when only a small pressure drop (i.e., between ambient pressure and the applied suction) were present. Therefore, the teachings of Barry et al. cannot effectively be applied to any method which teaches the use of suction, for example as disclosed in the Sameshima reference, since its principles of operation are diametrically opposed thereto, and would be counterproductive if one were to attempt to alter same for use with a suction-operated method rather than a pressure-propelled method.

Additionally, there is no instruction or suggestion given in the reference as to how ice pigs of the disclosed shape and size could conceivably be simply pulled into the coil pipe from the hopper merely by the operation of an applied suction, as claimed, particularly since the disclosed method requires careful hand-loading and positioning of a pig into a tube prior to the applying of propelling pressure behind it.

In the background disclosure, Barry et al. mentions that it is well known in the art "of extracting and distributing petroleum to pass a 'pig' of solid material through a pipeline to wipe deposited paraffins from the wall. Furthermore, "pigging" is a known technique in the cleaning of tubes. However the pigs used are flexible and compressible and are often provided with abrasives embedded in their outer walls or with cutting or gouging devices projecting through their outer surface. Such a pig is forced through a tube by hydraulic action mechanically gouging material from the wall of the tube and pushing debris in front of it." (Col. 2, lines 1-11, emphasis added).

Claim 1 of Barry et al. indicates “said pig [as] being dimensioned to conform with the average lumen defined by the thickness of deposits on the tube.” The disclosure explains the process used to clean a heavily clogged pipe in which “cleaning is effected by several passes of pigs of increasing diameter. The diameter of the pig first passed is selected to permit it to penetrate the lumen of the contaminated tube, and the pig is launched through the tube in the manner described above. If a pig of correct diameter is selected by the operator, it is accompanied during its penetration of the contaminant material by a flow of pressurised cleaning liquid which fills the annular space between the pig and the contaminant material. This flow of minimized cleaning medium passes the pig, the progress of which is retarded by the contaminant material. It is thought that the flow of minimized cleaning medium emerges on the downstream side of the pig as an energetic annular jet, which erodes the contaminant material ahead of the pig, allowing it to progress through the tube. This process is then repeated with a pig of larger diameter.” (Col. 3, lines 36-53, emphasis added) Thus, as disclosed, even the smallest pig (first pig) is dimensioned large enough to cut through a layer of lumen coating the tube by scraping therethrough in its propelled travel. And the pigs only increase in size thereafter.

Furthermore, the disclosure of Barry et al. theorizes that cleaning takes place, not as a result of scraping, but rather due to “the result of cavitation in the wake of the pig produced by a toroidal vortex generated at the rear of the pig by the viscous attachment of the cleaning liquid to the tube wall.” (See also col. 3, line 63-col. 4, line

6). Thus, it is clear that one of ordinary skill in the art would not expect the same phenomenon to occur when drawing a slurry of ice and water through a tube by operation of a pulled suction, and therefore there would be no requisite likelihood for success in applying such modification.

The “pig” used Barry is therefore limited to a body having close conformance with a traversable interior diameter of the pipe to be cleaned. It is applicant’s position that Barry is enabling only for use of a pig dimensioned to operate as a propelled “piston,” of sorts, and which essentially forms a hydraulic seal, or at least restriction, between the pipe walls (or lumen carried thereon forming an “effective” inner diameter) and the outside of the pig. Thus, since the teaching of Barry et al. is limited to a pig of a generally inner-pipe diameter-conforming size, its disclosure cannot be somehow expanded to include an ice/water slurry which can be drawn into a heat exchanger tube to be cleaned, by the mere application of suction rather than pressure from behind, nor can it be relied upon for the indication that such slurry will have any likelihood of cleaning success in such situation, if so tried. Barry et al. clearly does not teach ice or any other material configured with a small enough dimension to be pulled into, and through, a tube, simply by suction applied at the other end, and is instead limited to being propelled by careful loading into a tube to be cleaned and pressure applied behind the projectile. In countering the Examiner’s position that Barry et al. includes teaching of a pig having a reduced size relative to a tube interior diameter, applicant cites to numerous indications given in Barry et al. which inescapably

establish the clear and unequivocal intention of Barry et al. to use a pig having a dimension matching the inner diameter of the tube to be cleaned (or “effective” inner diameter defined by the lumen coating it), and the stark absence of any teaching or suggestion whatsoever relating to use of a pig of smaller size in the cleaning of heat exchanger tubes.

In very limited discussion of the specific use of ice as a pig in the disclosure of Barry et al., the reference states that a “pig of ice may also be used, for example, where a tube has been distorted during dismantling of a tube bundle or removal to a cleaning pad. An ice pig may jam in an oval tube without serious consequences arising. (Col. 4, lines 27-31, emphasis added). Such disclosure clearly evidences the intention in Barry et al. to use a pig dimensioned to just barely clear the tube interior, as indeed would be expected of a hydraulically driven piston element.

Barry et al. goes on to say that “[i]t is possible to machine such a pig to fit closely the particular dimensions of a tube to be cleaned. This feature is subject, of course, to a limitation in that the pig may not move at all, if there is too small a clearance. For example, clearances of between 0.01" and 0.005", desirably 0.0085", have been found suitable with a Delrin pig used to clean a steel tube.” (Col. 4, lines 32-38). Yet further evidence of the intentions of Barry et al. to size a pig to closely conform with the inner tube diameter.

Further, Barry et al. discloses that “[i]n known pigging techniques rather complex pigs have been used, having abrasive material incorporated therein as

described above. One advantage of the present method is that a simple pig may be used, for example, a simple cylinder of plastics material or a ball (where U-tubes are to be cleaned). (Col. 4, lines 39-44, emphasis added). Such disclosure is revealing of the mandate in Barry et al. to maintain close tolerance between the inner tube diameter and pig diameter, since the disclosure recognizes that a cylinder would jam going around a U-bend, and suggests the use of a ball (sphere) to avoid the problem, rather than suggesting a reduction in size of the pig.

The figures, in addition to the lacking written disclosure, fail to depict a pig that is anything but in close conformance with the tube interior. Indeed, use of a smaller pig would not work according to the functioning of Barry et al.. A hydraulically propelled pig under high pressure relies on an annular “seal” to create a pressure drop which operates to impart the great velocity intended by the disclosed approach. To make the pig smaller would defeat the purpose and effective functioning of the disclosed invention, and therefore clearly teaches away from the present invention in which a slurry of ice moved by applied suction, is used.

Finally, with such a dimensioned pig, Barry et al. requires high pressure to keep it from jamming in the tube. Barry et al. states that “[s]uitably the pressures used are in the range from 1,000 to 10,000 psi, preferably from 1,000 to 6,000 psi.” (col. 4, lines 47-49, emphasis added). Surely, with the much smaller pressure differential created by the simple application of suction (which according to known principles amounts to a maximum 14.7 psi difference between atmospheric pressure and a

perfect vacuum at sea level) a pig of such nature would never be expected to pass through a debris coated tube in a heat exchanger, as is possible in accordance with the claimed invention, because of the use of smaller bodies of ice.

Barry et al., as discussed above, while relating generally to the cleaning of tubing in heat exchangers, utilizes pigs propelled under high pressure and which are sized to closely match an interior cross-section of the clogged tubing, such that each pig essentially operates like a high velocity “piston” driven by great pressure behind it, rather than using relatively low pressure-difference suction from the other side as a motion imparting mechanism. The invention disclosed in Barry et al. relies on such intentional dimensioning of the pig (which may be made of ice), since the functioning of the method requires a pressure build-up on the back of the pig to propel it (see, for example, col. 3, lines 7-20).

The intentional sizing of the pig closely matching the interior diameter of the piping is evidenced by the recognized problem of the jamming of ice in the tubes (See col. 4, lines 27-31 of Barry), and such teaching would therefore preclude the use of mere suction, as opposed to the disclosed high pressure, since even the slightest irregularity of the tube would cause a jam when only a small pressure drop (i.e., between ambient pressure and the applied suction) were present. Therefore, the teachings of Barry et al. cannot effectively be applied to any method which teaches the use of suction, for example as disclosed in the Sameshima reference, since its principles of operation are diametrically opposed thereto, and would be

counterproductive if one were to attempt to alter same for use with a suction-operated method rather than a pressure-propelled method.

Additionally, there is no instruction or guidance given in the Barry et al. reference as to how ice pigs of the disclosed shape and size could conceivably be simply pulled into the coil pipe from the hopper merely by the operation of an applied suction, as claimed, particularly since the disclosed method, because of the intentional sizing of the pig to conform to the effective inner diameter of the tube to be cleaned, requires careful hand-loading and positioning of a pig into the tube prior to the applying of high propelling pressure behind it.

The secondary Sameshima reference, which is cited for its teaching relating to applied suction and a supplied ice and water mixture, relates specifically to cleaning of waste and water supply piping in domestic plumbing. There is no indication that the same fouling agents present in sewer and water lines will have the same characteristics as those encountered in heat exchangers. For example, Barry et al. states that paraffin is a fouling agent in heat exchangers, and teaches that a pig is used to clear it from the tube. However, in a waste system, such as in Sameshima, it is doubtful whether such deposits of this nature are encountered. Hence, one skilled in the art would not have a reasonable expectation of success in cleaning heat exchangers by application of a flushing method relating simply to domestic pipes, particularly since the use of pigs, long used in the cleaning of heat exchangers, teaches

that the pigs are propelled by pressure, and have a diameter large enough to scrape the accumulated deposits in the pipes as it passes therealong.

Lastly, Withers Jr., cited specifically for the premise of periodic flow reversal, lacks any disclosure providing the requisite motivation for combination of the references, or likelihood for success in cleaning heat exchanger tube(s) using a water and ice mixture drawn by suction into the tube(s) from a hopper merely by the operation of suction, that is missing from both Barry et al. and Sameshima. Thus, applicant respectfully submits that the Examiner is applying impermissible hindsight in making the combination upon which the rejection is based. Moreover, even if combined, the approach of Barry et al. would not be functional based upon its enabling disclosure. In particular, pigs of a diameter approximating an internal pipe diameter would not be drawn from a hopper by operation of applied suction since the pigs require careful positioning and alignment with the pipe entrance, and also would easily jam in an obstruction without high pressure behind the pig to clear the jam.

It is respectfully submitted that the rejected claims are not obvious in view of the cited references for the reasons stated above. Reconsideration of the rejections of claims 1, 7, 9 and 11 and their allowance are respectfully requested.

Claims 6, 8, 10 and 12 are rejected as obvious over Barry (US 4,724,007) in view of Sameshima (JP01-028625) and further in view of Withers Jr. (US 4,007,774) and further in view of Leon et al. (US 4,327,560) under 35 U.S.C. §103(a). The applicant herein respectfully traverses this rejection.

These rejection differ from those applied to claim 1 in regard to the additional Leon et al. reference, used for the teaching relating to the use of copper coils. Since Leon et al. fails to provide what is lacking from the remaining references, discussed above in detail relating to claim 1, in is respectfully submitted that a *prima facie* case of obvious has not been established. Therefore, reconsideration of the rejections of claims 6, 8, 10 and 12 and their allowance are respectfully requested.

Claims 13-17 are rejected as obvious over Barry (US 4,724,007) in view of Sameshima (JP01-028625) and further in view of Williams Jr. (US 5,499,639) under 35 U.S.C. §103(a). The applicant herein respectfully traverses this rejection.

None of the references teach the simultaneous passage of cleaning agents, such as ice, through parallel pipes interconnecting headers. Williams, Jr. cited as teaching that heat exchangers can have inlet and outlet headers to provide communication between a plurality of tubes, fails, however, to teach a method of cleaning such plural pipes (tubes) by simultaneous passage “internally through said at least two coil pipes.” Rather, and in stark contrast with the present invention as claimed in independent claim 13, the tubes in Williams, Jr. are cleaned one at a time (See, for example, Fig. 1), as are the pipes in both Barry et al. and Sameshima. The claims positively recite the step of simultaneous passing the ice and water mixture through two coil pipes arranged between headers, making clear this distinction over the art of record.

With specific regard to claims 13-17 which are rejected as obvious over Barry (US 4,724,007) in view of Sameshima (JP01-028625) and further in view of Williams

Jr. (US 5,499,639) under 35 U.S.C. §103(a) it is submitted that none of the references teach the simultaneous passage of cleaning agents, such as ice, through parallel pipes interconnecting headers. Williams, Jr., which is being cited as allegedly teaching that heat exchangers can structurally have inlet and outlet headers to provide communication between a plurality of tubes, fails, however, to teach a method of cleaning such plural pipes (tubes) by simultaneous passage “internally through said at least two coil pipes.” Rather, and in stark contrast with the present invention as claimed in independent claim 13, the tubes in Williams, Jr. are cleaned one at a time (See, for example, Fig. 1), as are the pipes in both Barry et al. and Sameshima. The claims in their present form positively recite the simultaneous passing the ice and water mixture through two coil pipes arranged between headers, to amplify this distinction. Thus, it is respectfully submitted that the rejected claims 13-17 are not obvious in view of the cited references for the reasons stated above.

It is respectfully submitted that the rejected claims are not obvious in view of the cited references for the reasons stated above. Reconsideration of the rejections of claims 13-17 and their allowance are respectfully requested.

In the Examiner’s Response to Arguments contained in the final Office Action mailed February 22, 2007, many of the statements appear to lack support in the cited reference disclosures. For example, despite the admission in paragraph 11 (bridging pages 9 and 10) that Barry et al. at “Col. 3, lines 55-57 teaches using pigs of small clearance in the tube,” the Examiner goes on to conclude in the same paragraph that

“since Barry teaches using ice/water and further teaches varying the pig dimension to fit the tube, a small pipe would require a pig with a small clearance and therefore the use of ice/water mixture.” It is unexplained how the teaching of a small clearance would support the use of a slurry of ice/water having a relatively significant clearance between the ice and the inner tube diameter.

In paragraph 12 on page 10, a similar apparent disregard for the difference between the claimed subject matter and the cited disclosure are noted. It appears that the Examiner is attempting to equate penetration of the lumen by a pig which conforms to the size of the tube inner diameter, to a slurry which is passed through the tube by applied suction, and which involve quite different disclosed mechanics. It is respectfully submitted that the noted passages of the cited Barry et al. reference indicated in paragraph 13 of the Office Action, rather than supporting the Examiner’s position, instead serve to underscore applicant’s position that close conformance between pig and tube diameter is what is exclusively envisioned in the reference.

In paragraph 14, the Examiner has apparently misunderstood applicant’s arguments which were merely trying to stress that since jamming is an expressed issue in the reference disclosure, it evidenced the fact that the pigs of Barry et al. necessarily had minimal (close) clearance with the tube diameter.

In paragraph 16, the Examiner concludes that “higher pressures are only required because the pigs are being launched” without any seeming support therefor. While stating that “Barry teaches adjusting the pressure depending upon the particular

application,” the Examiner fails to acknowledge that the lowest pressure disclosed as “suitable” is 1000 psi (see col. 4, lines 47-48), or explain why, in light of this disclosure, one of ordinary skill would instead use a pressure drop of at most 14.7 psi. (which is attendant the pulling of suction relative to atmospheric pressure), as in the present invention.

Finally, paragraph 21 addresses applicant’s arguments with respect to claims 13-17 and references col. 5, lines 19-35 of Barry et al.. While applicant recognizes that the disclosure mentions application of a rapid pressure build-up simultaneously to a selected number of tubes, nowhere is it disclosed that a hopper containing an ice/water mixture is connected to a header, and the ice/water mixture is caused to be suctioned into the header so as to simultaneously pass internally through at least two coil pipes interconnecting the header at one end to another header at the other end by applying suction to the other header, as presently claimed. It is respectfully submitted that the Examiner fails to provide any of the requisite teaching that would lead one of ordinary skill in the art to arrive at such method in view of a modification of the above discussed teaching of Barry et al..

Applicant respectfully requests that the Examiner respond to these above issues in a subsequently issued Office Action.

Claims 18-27 are added and are submitted as patentable over the cited art of record. Independent claim 18 recites subject matter directed to connecting a hopper containing an ice and water mixture to a one of an inlet or an outlet, and applying

suction to a remaining one of the inlet or the outlet so that the ice and water mixture is suctioned from the hopper into the one of the inlet or the outlet and caused to flow internally through the coil pipe towards the remaining one of the inlet or the outlet which, among other features recited therein, is not believed disclosed in the cited art in the manner as claimed. Dependent claims 19-27 are patentable based on the subject matter recited therein in addition to the subject matter of claim 18.

Three (3) claims in excess of twenty are added. One (1) further independent claim in excess of three is added. Accordingly, please charge the fee of \$175 to Deposit Account No. 10-1250.

The USPTO is hereby authorized to charge any fee(s) or fee(s) deficiency or credit any excess payment to Deposit Account No. 10-1250.

A Request for Continued Examination (RCE) is being filed concurrently herewith in which a two (2) month extension of time for response is requested.

In light of the foregoing, the application is now believed to be in proper form
for allowance of all claims and notice to that effect is earnestly solicited.

Respectfully submitted,
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